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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.        | CONFIRMATION NO.       |
|---|-------------|----------------------|----------------------------|------------------------|
| 10/584,515  | 05/15/2007  | Hiroshi Kukino       | 81880.0149                 | 4163                   |
| 73230   | 7590        | 11/10/2010           |                            |                        |
| DLA PIPER US LLP<br>1999 AVENUE OF THE STARS<br>SUITE 400<br>LOS ANGELES, CA 90067-6023 |             |                      | EXAMINER<br>PATEL, VINOD D |                        |
|   |             |                      | ART UNIT<br>3742           | PAPER NUMBER           |
|   |             |                      | MAIL DATE<br>11/10/2010    | DELIVERY MODE<br>PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |                                      |  |
|------------------------------|--------------------------------------|--------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/584,515 | <b>Applicant(s)</b><br>KUKINO ET AL. |  |
|                              | <b>Examiner</b><br>VINOD D. PATEL    | <b>Art Unit</b><br>3742              |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 7-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/23/06, 11/21/07, 7/29/08, 4/1/09, 12/16/09</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election without traverse of Group I claim 1-20, and first embodiment, claims 1-6 readable on elected species in the reply filed on 7/16/10 is acknowledged.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
3. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over in Tanaka et al. (US20010042746) view of Radmacher (US5993722).

With respect to claim 1, Tanaka et al. discloses a ceramic heater (1) comprising a heat generating resistor (3) buried in a ceramic body, (2) wherein the angle of the edge of said heat generating resistor is about 60 degree or less in at least a portion of said heat generating resistor (Figure 9, 10), when viewed in a plan view (from top of the

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heat generating resistor) in order to prevent cracking in the heating element (paragraph [0139, 0140]).

With respect to claim 1, Tanaka et al. does not disclose the heat generating resistor is 60 degree or less in at least a portion of said heat generating resistor when viewed from a cross section perpendicular to the longitudinal direction of the heat generating resistor.

Radmacher discloses a ceramic heater (10) for use in a glow plug for a diesel engine has a gradually varying cross-sectional composition which eliminates distinct interfacial junctions between a resistive layer, an insulative layer and a highly conductive layer. comprising a heat generating resistor (12), wherein the angle of the edge of said heat generating resistor is about 60 degree or less (as shown in Figures 1-2) in at least a portion of said heat generating resistor, when viewed from a cross section perpendicular to the longitudinal direction of said heat generating resistor.

It would have been obvious to one of ordinary skilled in the art at the time of invention to provide a heat generating resistor having angle of 60 degree or less in at least a portion of said heat generating resistor when viewed from a cross section perpendicular to the longitudinal direction of the heat generating resistor as taught by Radmacher in order to eliminates distinct interfacial junctions between layers (US5993722, abstract, column 1, lines 8-10, column 6, lines 28-35) for the ceramic heater of Tanaka et al.

With respect to claim 2, Tanaka et al. discloses the portion where the angle of the edge of said heat generating resistor is about 60 degree or less is located in a bending portion of said heat generating resistor as shown in Figures 9-10 in a plan view.

With respect to claim 3, Tanaka et al. discloses the edge of said heat generating resistor has a curved surface, of which curvature radius is about 0.1 mm or less as shown in Figures 9-10.

With respect to claim 4, Tanaka et al. discloses the mean thickness of said heat generating resistor at the center of the width thereof is about 100  $\mu$  m or less as shown in Figures 9-10.

With respect to claim 5, Tanaka et al. discloses the distance from the edge of said heat generating resistor to the surface of said ceramic heater is about 50  $\mu$  m or larger as shown in Figures 9-10.

With respect to claim 6, Tanaka et al. discloses the proportion of an area occupied by a metal component in the cross section of said heat generating resistor is in a range from about 30 to 95% (claim 2).

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to VINOD D. PATEL whose telephone number is (571)272-4785. The examiner can normally be reached on 7.15 A.M. TO 3.45 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu B. Hoang can be reached on 571-272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Vinod D. Patel/ 11/5/10

Examiner, Art Unit 3742

/Geoffrey S Evans/

Primary Examiner, Art Unit 3742